AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions and listings of claims in the application:

1.-13. (Canceled)

14. (Currently Amended) A method of executing a neural network in a speech recognition system for recognizing speech of an input speech signal organized into a series of frames, comprising:

calculating, by means of said neural network, a first and a second likelihood corresponding to a first and a second non-consecutive frame;

~~evaluating~~ calculating a distance between said first and second non-consecutive frames;

comparing said distance with a predetermined threshold value to evaluate a possibility of skipping at least one run of the neural network;

selectively skipping ~~one or more runs~~ the at least one run of the neural network in correspondence to each frame between said first and said second non-consecutive frames to optimize the neural network when said distance is lower than said threshold value;

calculating a likelihood or likelihoods corresponding to each frame between said first and second non-consecutive frames; [[and]]

calculating said distance as a distance between output likelihoods of said neural network; and

providing an optimized neural network by outputting the likelihood or likelihoods corresponding to each frame between said first and second non-consecutive frames to a computer readable medium.

15. (Previously Presented) The method according to claim 14, further comprising:

a) buffering a plurality of input frames;

b) defining an interval corresponding initially to a main interval of frames delimited by a first and a second non-consecutive buffered frames;

c) calculating, by means of said neural network, said first and said second likelihood corresponding to said buffered frames delimiting said interval;

d) calculating a distance between said first and said second likelihoods;

e) comparing said distance between said first and said second likelihoods with a threshold value and, in case said distance between said first and said second likelihoods is lower than said threshold value, calculating by interpolation between said first and said second likelihoods, the likelihood or likelihoods corresponding to each frame between said first and said second nonconsecutive buffered frames, or, in case said distance between said first and said second likelihoods is greater than said threshold value, calculating, by means of said neural network, at least one other likelihood corresponding to at least one other frame within said interval; and

f) applying recursively said steps c) to e) to each interval present as a sub-interval within said main interval containing at least one frame whose likelihood has not been yet calculated, until all the likelihoods corresponding to the frames in said main interval have been calculated.

16. (Previously Presented) The method as claimed in claim 15, wherein said interpolation is a linear interpolation.

17. (Previously Presented) The method as claimed in claim 15, wherein said main interval of frames comprises said plurality of buffered input frames.

18. (Previously Presented) The method as claimed in claim 15, wherein said likelihoods are probability distributions.

19. (Previously Presented) The method as claimed in claim 18, wherein said distance between said first and said second likelihoods is calculated as a symmetric Kullback distance between probability distributions.

20. (Previously Presented) The method as claimed in claim 15, wherein said threshold value is comprised of a fuzzy set.

21. (Previously Presented) The method as claimed in claim 20, wherein said fuzzy set has a domain corresponding to a percentage of output units of said neural network used by a current phonetic variability.

22. (Previously Presented) The method as claimed in claim 21, wherein said fuzzy set is a linear segmented decreasing function.

23.-24. (Canceled)

25. (Currently Amended) A speech recognition system for recognizing speech of an input speech signal, comprising:

a neural network for calculating likelihoods corresponding to frames of said input speech signal, comprising:

a buffer for storing a plurality of input frames;

a distance evaluation unit for calculating a distance between a first and a second likelihood, said first and second likelihoods being obtained by means of said neural network and corresponding to a first and a second non-consecutive buffered frames;

a comparing unit for comparing said distance with a predetermined threshold value to evaluate a possibility of skipping at least one run of the neural network; and

an interpolation unit for, after the comparing, in case said distance is lower than said threshold value, skipping a run of the neural network corresponding to each of the frame or frames between said first and second non-consecutive frames to optimize the neural network, and calculating the likelihood or likelihoods corresponding to the frame or frames between said first and second non-consecutive buffered frames, and

a computer readable medium for storing at least one output of the neural network, the at least one output comprising the likelihood or likelihoods corresponding to the frame or frames between said first and second non-consecutive buffered frames.

26. (Previously Presented) The speech recognition system according to claim 25, wherein said buffer is a lookahead buffer.

27. (Currently Amended) A computer-readable medium for use on a computing system, the computer-readable medium including computer-executable instructions for performing a method of executing a neural network in a speech recognition system for recognizing speech of an input speech signal organized into a series of frames, the method comprising:

calculating, by means of said neural network, a first and a second likelihood corresponding to a first and a second non-consecutive frame;

~~evaluating~~ calculating a distance between said first and second non-consecutive frames;

comparing said distance with a predetermined threshold value to evaluate a possibility of skipping at least one run of the neural network;

selectively skipping ~~one or more runs~~ the at least one run of the neural network in correspondence to each frame between said first and said second non-consecutive frames to optimize the neural network when said distance is lower than said threshold value;

calculating a likelihood or likelihoods corresponding to each frame between said first and second non-consecutive frames; [[and]]

calculating said distance as a distance between output likelihoods of said neural network; and

providing an optimized neural network by outputting the likelihood or likelihoods corresponding to each frame between said first and second non-consecutive frames to the computer readable medium.

28. (Previously Presented) The computer-readable medium of claim 27, wherein the method further comprises:

a) buffering a plurality of input frames;

b) defining an interval corresponding initially to a main interval of frames delimited by a first and a second non-consecutive buffered frames;

c) calculating, by means of said neural network, said first and said second likelihood corresponding to said buffered frames delimiting said interval;

d) calculating a distance between said first and said second likelihoods;

e) comparing said distance between said first and said second likelihoods with a threshold value and, in case said distance between said first and said second likelihoods is lower

than said threshold value, calculating by interpolation between said first and said second likelihoods, the likelihood or likelihoods corresponding to each frame between said first and said second nonconsecutive buffered frames, or, in case said distance between said first and said second likelihoods is greater than said threshold value, calculating, by means of said neural network, at least one other likelihood corresponding to at least one other frame within said interval; and

f) applying recursively said steps c) to e) to each interval present as a sub-interval within said main interval containing at least one frame whose likelihood has not been yet calculated, until all the likelihoods corresponding to the frames in said main interval have been calculated.

29. (Previously Presented) The computer-readable medium of claim 28, wherein said interpolation is a linear interpolation.

30. (Previously Presented) The computer-readable medium of claim 28, wherein said main interval of frames comprises said plurality of buffered input frames.

31. (Previously Presented) The computer-readable medium of claim 28, wherein said likelihoods are probability distributions.

32. (Previously Presented) The computer-readable medium of claim 31, wherein said distance between said first and said second likelihoods is calculated as a symmetric Kullback distance between probability distributions.

33. (Previously Presented) The computer-readable medium of claim 28, wherein said threshold value is comprised of a fuzzy set.

34. (Previously Presented) The computer-readable medium of claim 33, wherein said fuzzy set has a domain corresponding to a percentage of output units of said neural network used by a current phonetic variability.

35. (Previously Presented) The computer-readable medium of claim 34, wherein said fuzzy set is a linear segmented decreasing function.